

FIG. 1.

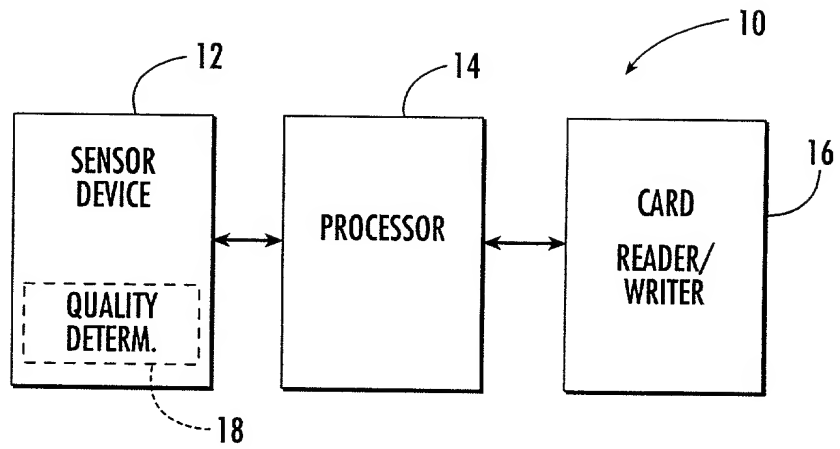


FIG. 2.

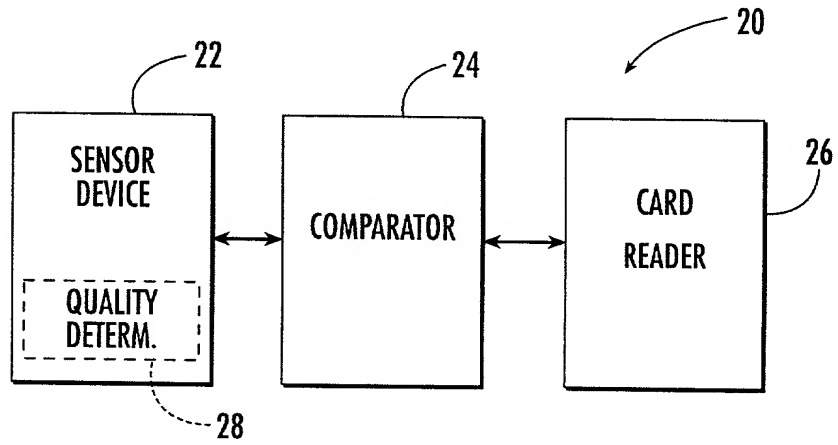
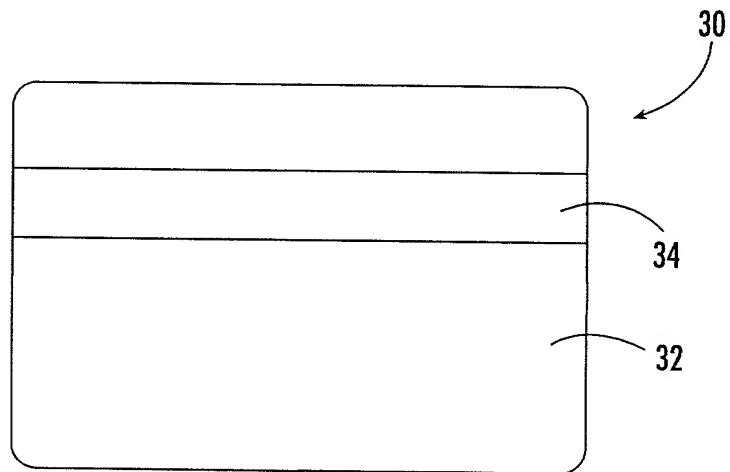


FIG. 3.



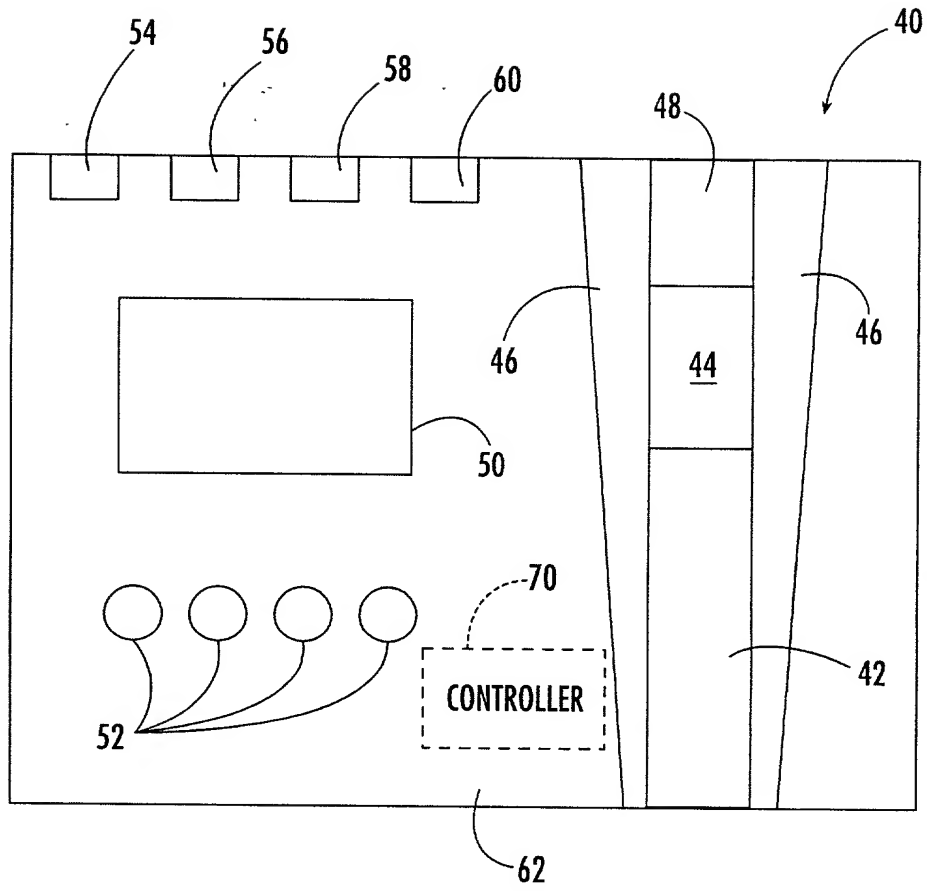


FIG. 4.

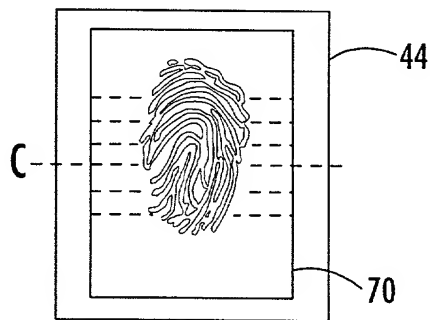


FIG. 5.

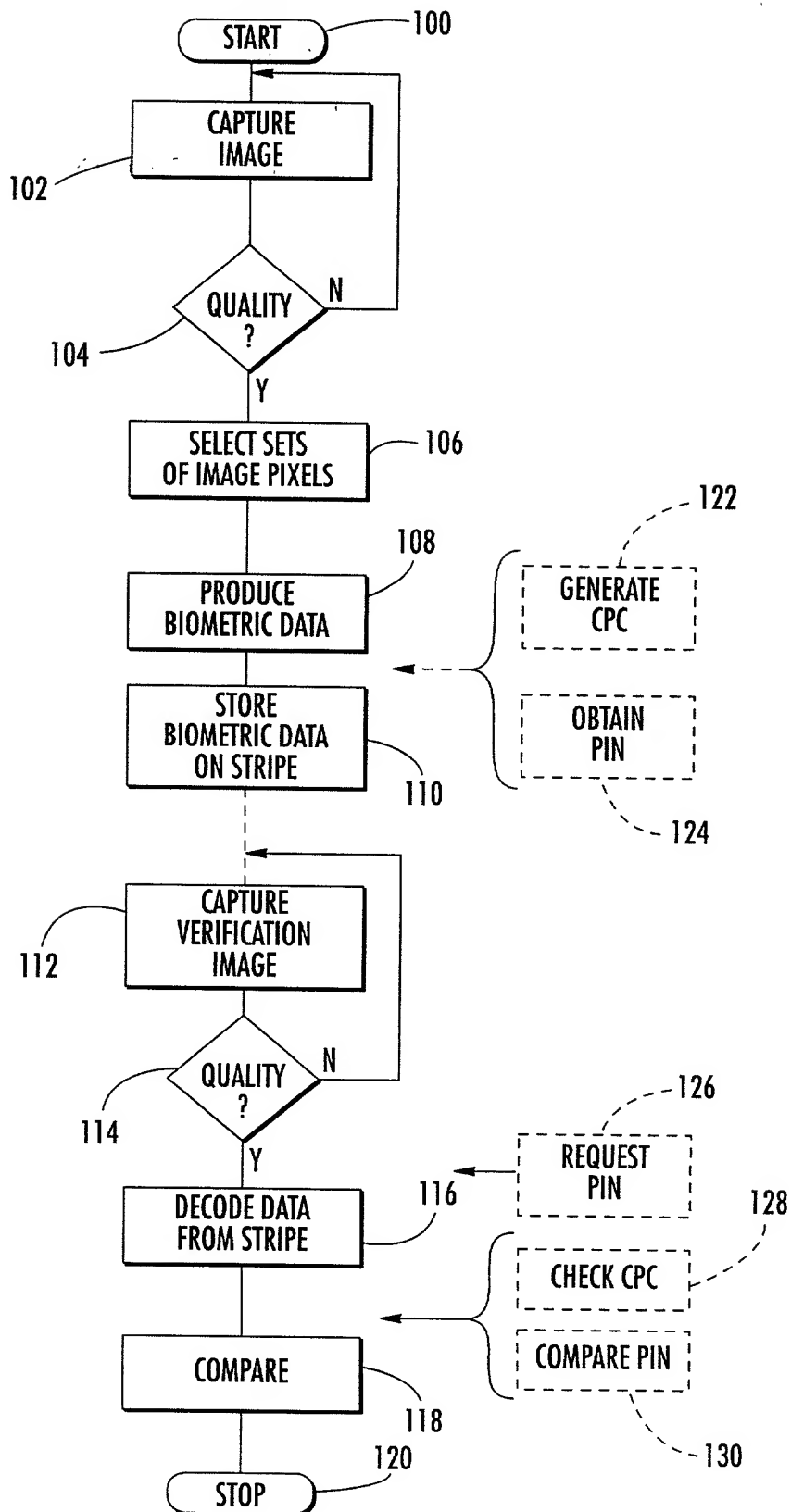


FIG. 6.

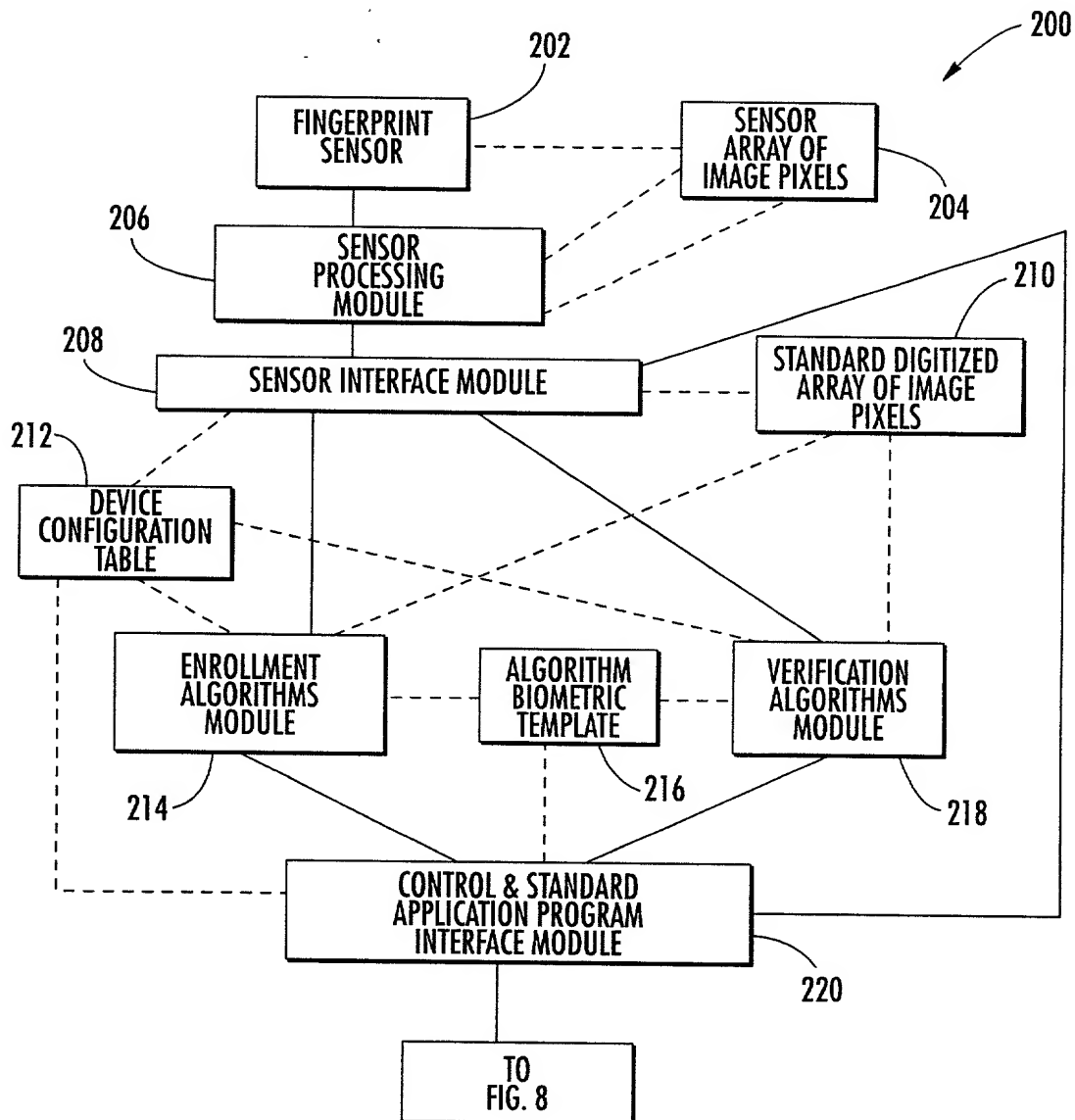


FIG. 7.

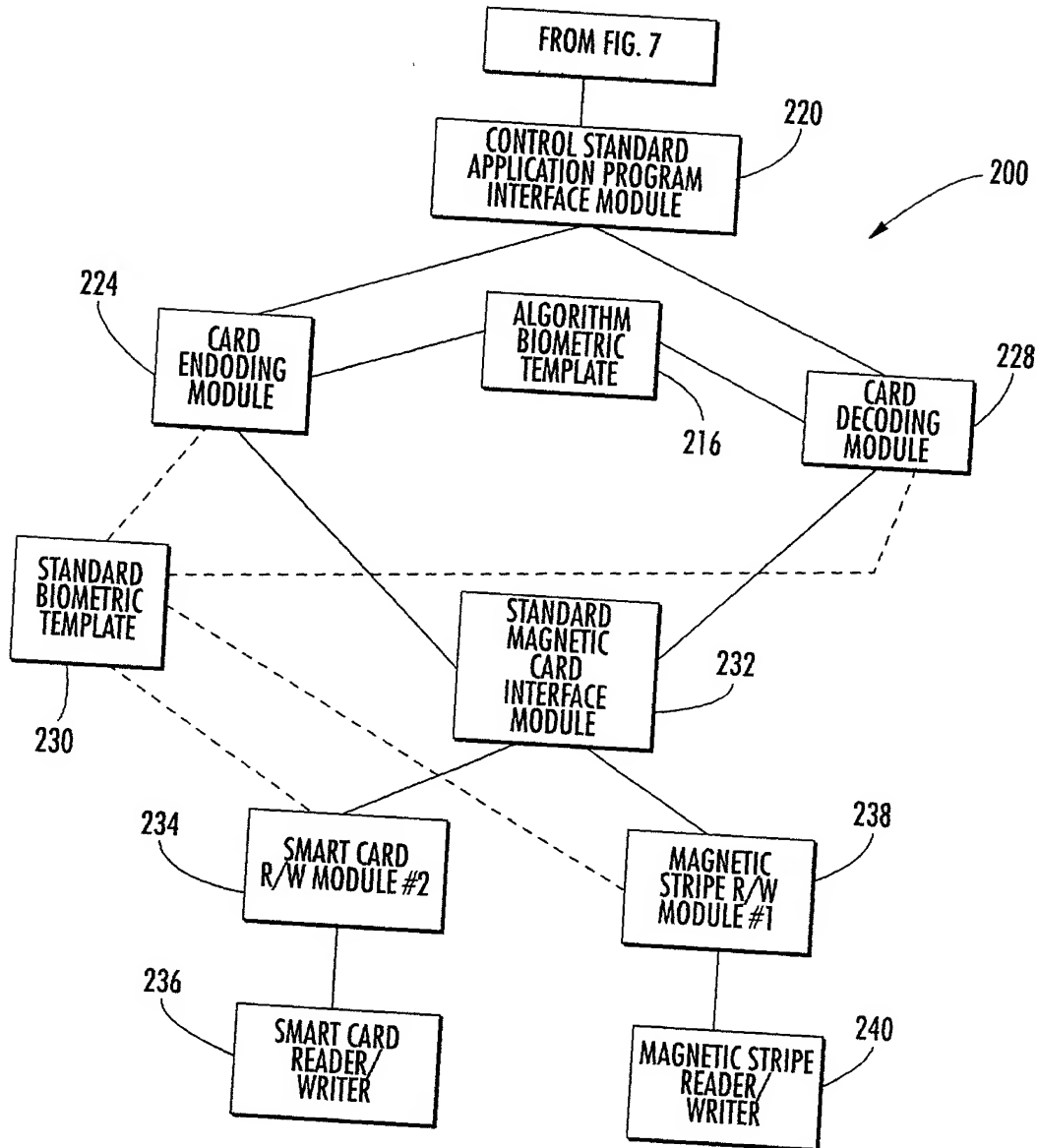


FIG. 8.

206250 688T800T

DEVICE CONFIGURATION TABLE

| DESCRIPTION | MODULE NAME | VALUE (ESTABLISHED AT COMPILE TIME) | COMMENTS |
|--|-------------------|---|--|
| DEVICE CONTROL CODE | | NINE NUMERIC CHARACTERS | USED FOR PREVENTING THEFT OF DEVICE ESTABLISHED AT COMPILE TIME |
| ENCODING APPROACH NUMBER | | "00" TO "15" | SELECTED FROM THE ENCODING APPROACH TABLE. ESTABLISHED AT COMPILE TIME |
| SENSOR PROCESSING MODULE | SENXXX | WHERE "XX" EQUALS "00" TO "99" | ESTABLISHED AT COMPILE TIME |
| ENROLLMENT/VERIFICATION ALGORITHM MODULE# | ENRXXX AND VERFXX | WHERE "XX" EQUALS "00" | DEFAULT ALGORITHM SELECTED BASED UPON THE "ENCODING APPROACH NUMBER" (SEE ABOVE) |
| ENROLLMENT/VERIFICATION ALGORITHM MODULE# | ENRXXX AND VERFXX | WHERE "XX" EQUALS "01" (IF "BLANK" NO ALTERNATIVE ALGORITHM EXISTS) | SECOND ALGORITHM |
| ENROLLMENT/VERIFICATION ALGORITHM MODULE# | ENRXXX AND VERFXX | WHERE "XX" EQUALS "02" TO "14" (IF "BLANK" NO ALTERNATIVE ALGORITHM EXISTS) | |
| ENROLLMENT/VERIFICATION ALGORITHM MODULE# | ENRXXX AND VERFXX | WHERE "XX" EQUALS "15" (IF "BLANK" NO ALTERNATIVE ALGORITHM EXISTS) | LAST ALGORITHM |
| CARD ENCODING/DECODING MODULE# (DEFAULT = "0") | ENCDXX AND DECDXX | WHERE "XX" EQUALS "00" THAT IS THE ENCODING APPROACH NUMBER | DEFAULT MODULE SELECTED BASED UPON THE "ENCODING APPROACH NUMBER" (SEE ABOVE) |
| CARD ENCODING/DECODING MODULE# | ENCDXX AND DECDXX | WHERE "XX" EQUALS "01" TO "14" (IF "BLANK" NO ALTERNATIVE MODULE EXISTS) | |
| CARD ENCODING/DECODING MODULE# | ENCDXX AND DECDXX | WHERE "XX" EQUALS "15" (IF "BLANK" NO ALTERNATIVE MODULE EXISTS) | LAST MODULE |
| CARD READER/WRIER MODULE# (DEFAULT="0") | CDRXXX AND CDWRXX | WHERE "XX" EQUALS "00" TO "99" | ESTABLISHED AT COMPILE TIME |
| COERCIVITY | | FOUR NUMERIC CHARACTERS (DEFAULT= HIGH COERCIVITY) | COERCIVITY LEVEL OF MAGNETIC STRIPE WRITER |
| SENSOR BAUD RATE | | SIX NUMERIC CHARACTERS WHERE "9600" bps IS THE DEFAULT | ESTABLISHED AT COMPILE TIME |

FIG. 9.

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ENCODING APPROACH TABLE

| ENCODING APPROACH NUMBER (COL 1) | ENCODING MAGNETIC STRIPE TRACK NUMBER (S) *** (COL 2) | MAXIMUM SIZE OF "BIOMETRIC TEMPLATE" (BITS) (COL 3) | MAXIMUM NUMBER OF CHARACTERS /TRACK (COL 4) | NO. OF BITS TRANSLATED AT A TIME (COL 5) | ENCODING TRANSLATION TABLE (COL 6) | DATA FORMAT (COL 7) | TRACK FORMAT (COL 8) |
|---|---|--|---|---|---|--------------------------|-----------------------------|
| 0 | 1 | 474 | 79 | 6 | 0 | ANSI/ISO ALPHANUMERIC | ISO |
| 1 | 1 | 395 | 79 | 5 | 1 | ANSI/ISO ALPHANUMERIC | ISO |
| 2 | 3 | 428 | 107 | 4 | 2 | ANSI/ISO NUMERIC | ISO |
| 3 | 1 | 492 | 82 | 6 | 0 | ANSI/ISO ALPHANUMERIC | AAMVA |
| 4 | 3 | 492 | 82 | 6 | 0 | ANSI/ISO ALPHANUMERIC | AAMVA |
| 5 | 1 | 410 | 82 | 5 | 1 | ANSI/ISO ALPHANUMERIC | AAMVA |
| 6 | 3 | 410 | 82 | 5 | 1 | ANSI/ISO ALPHANUMERIC | AAMVA |
| 7 | 1 | 510 | 86 | 6 | 0 | ANSI/ISO ALPHANUMERIC | AAMVA* |
| 8 | 3 | 510 | 86 | 6 | 0 | ANSI/ISO ALPHANUMERIC | AAMVA* |
| 9 | 1 | 425 | 86 | 5 | 1 | ANSI/ISO ALPHANUMERIC | AAMVA* |
| 10 | 3 | 425 | 86 | 5 | 1 | ANSI/ISO ALPHANUMERIC | AAMVA* |
| 11 | 1 | 595 | 86 | N/A | N/A | CUSTOM ** | CUSTOM ** |
| 12 | 2 | 595 | 86 | N/A | N/A | CUSTOM ** | CUSTOM ** 210 bpi |
| 13 | 3 | 595 | 86 | N/A | N/A | CUSTOM ** | CUSTOM ** |
| 14 | 2 | 510 | 86 | 6 | 0 | ANSI/ISO ALPHANUMERIC | NON- STANDARD 210 bpi |
| 15 | 2 | 428 | 107 | 4 | 2 | ANSI/ISO NUMERIC | NON- STANDARD 210 bpi |

FIG. 10.

STANDARD BIOMETRIC TEMPLATE

| FIELD | VALUE/SIZE | COMMENTS |
|---|-------------------------------------|--|
| HEADER: SOFTWARE VERSION NUMBER | "0" TO "256" - 8 BITS (8BITS/BYTE) | THE SOFTWARE VERSION NUMBER MAY RELATE TO THE ENROLLMENT/VERIFICATION ALGORITHM MODULE# CARD ENCODING MODULE AND/OR ENCODING APPROACH NUMBER THAT ARE USED TO CREATE THE "BIOMETRIC" TEMPLATE. |
| COPY PROTECT CODE | 6 BITS (8BITS/BYTE) | SEVEN BIT LRC CHARACTER MINUS THE PARITY BIT. THE COPY PROTECT CODE IS EMBEDDED IN THE "YARDSTICK" DATA. |
| "MINI-PIN" | "0" TO "999" - 10 BITS (8BITS/BYTE) | THE "MINI-PIN" IS EMBEDDED IN THE "YARDSTICK" DATA. |
| ENROLL FINGER CODE | 3 BITS (8BITS/BYTE) | WHERE: 0 - MIDDLE, RIGHT, 1 - INDEX, RIGHT 2 - RING, RIGHT, 3 - MIDDLE, LEFT 4 - INDEX, LEFT, 5 - RING, LEFT 6 - OTHER FINGER |
| RESERVE | 1 BITS (8BITS/BYTE) | |
| ALGORITHM BIOMETRIC TEMPLATE W/O HEADER | | |
| DATA - "YARDSTICKS" | 72 BYTES (7BITS/BYTE) | THE LAST BYTE IN EACH OF THE YARDSTICKS IS NOT USED |
| TRAILER | 7 BITS (8BITS/BYTE) | - 4 BITS - EXTENDED PIN (0-9) - 3 BITS - ERROR BIT INCREMENT COUNTER ((0-7) SEE TABLE BELOW) |
| | 7 BITS (8BITS/BYTE) | - 6 BITS USED FOR YARDSTICK LOCATIONS - 1 BIT HARD TO ENROLL FLAG |
| TOTAL | 79 BYTES (7BITS/BYTE) | DOES NOT INCLUDE CONTROL CHARACTERS |

FIG. 11.

ALGORITHM BIOMETRIC TEMPLATE

| FIELD | VALUE/SIZE | COMMENTS |
|---------------------|------------------------|---|
| HEADER: | 2 BYTE | HEX "01" |
| DATA - "YARDSTICKS" | 60 BYTES | THE LAST BYTE IN EACH OF THE YARDSTICKS IS NOT USED |
| TRAILER | 1 BYTE | - 4 BITS - EXTENDED PIN (0-9) - 3 BITS - ERROR BIT INCREMENT COUNTER ((0-7) SEE TABLE BELOW) |
| | 1 BYTE | - 6 BITS USED FOR YARDSTICK LOCATIONS - 1 BIT HARD TO ENROLL FLAG |
| TOTAL | 64 BYTES (8 BITS/BYTE) | |

FIG. 12.

ERROR BIT RATE INCREMENT COUNTER TABLE

| NUMBER OF BITS THAT FAILED DURING VERIFY FOR THE YARDSTICKS PROCESSED (BASE ERROR BIT RATE + ERROR BIT INCREMENT COUNTER) | ERROR BIT INCREMENT COUNTER | COMMENTS |
|---|-----------------------------|---|
| 20 | 0 | TYPICAL ERROR BITS INCREMENT COUNTER IF NO PIN IS USED |
| 21 | 1 | |
| 22 | 2 | TYPICAL ERROR BITS INCREMENT COUNTER IF PIN IS USED |
| 23 | 3 | TYPICAL ERROR BITS INCREMENT COUNTER IF EXT PIN IS USED |
| 24 | 4 | |
| 25 | 5 | |
| 26 | 6 | |
| 27 | 7 | |

FIG. 13.

210 STANDARD DIGITIZED ARRAY OF IMAGE PIXELS

| | | | | |
|----------|--|----------|----------|----------|
| FFFFFFF | | | DDDDDDDD | BBBBBBBB |
| | | | | |
| | | GGGGGGGG | | |
| | | | | |
| EEEEEEEE | | | CCCCCCCC | AAAAAAA |

WHERE:

- "AAAAAAA" ARE THE GRAY SCALE FOR COLUMN 0, ROW 0, THE BOTTOM RIGHT CORNER OF THE IMAGE
- "BBBBBBBB" ARE THE GRAY SCALE FOR COLUMN 0, ROW 255, THE TOP RIGHT CORNER OF THE IMAGE
- "CCCCCCC" ARE THE GRAY SCALE FOR COLUMN 1, ROW 0
- "DDDDDDDD" ARE THE GRAY SCALE FOR COLUMN 1, ROW 255
- "EEEEEEEE" ARE THE GRAY SCALE FOR COLUMN 255, ROW 0, THE BOTTOM LEFT CORNER OF THE IMAGE
- "FFFFFFF" ARE THE GRAY SCALE FOR COLUMN 255, ROW 255, THE TOP LEFT CORNER OF THE IMAGE
- "GGGGGGGG" ARE THE GRAY SCALE FOR COLUMN 128, ROW 128 WHICH SHOULD APPROXIMATE THE CENTER OF THE SENSOR FINGERPRINT IMAGE
- 8 BITS/ "CELL" WHERE "0000000" IS "NO RIDGE" ON A GRAY SCALE
- 8 BITS/ "CELL" WHERE "0000001" TO "1111111" IS "RIDGE" ON A GRAY SCALE DEPENDING UPON THE SENSOR NUMBER

FIG. 14.

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